

TECHNICAL MANUAL SERIES

LIQUID WASTE DISPOSAL

WASTEWATER DISPOSAL

BY

SPLIT-FLOW SYSTEMS



STATE OF NEW MEXICO

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**HEALTH AND ENVIRONMENT DEPARTMENT
ENVIRONMENTAL IMPROVEMENT DIVISION**

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INTRODUCTION

A split-flow wastewater disposal system is one in which household waste is separated into particular components which are then treated and/or reused in different ways. Normally, the systems separate greywater from black wastes. Black waste (or blackwater) is the waste from toilets and garbage disposals. Greywater is defined as all the other wastewater produced by a household. There are several advantages to separating greywater and black waste. Normally, one or both of the separated flows is recycled or otherwise processed in a way which permits reuse. In particular, either the toilet wastes are handled by a special toilet, or the greywater is recycled for toilet flushing. In either case, much of the water which a household normally uses for flushing is saved (typically 40% of the water used indoors in an average household equipped with standard plumbing fixtures). Consequently there is substantially less flow of wastewater to the septic tank, which reduces the area needed for the drainfield. An added environmental benefit if black wastes are handled in a special way is the decreased nitrogen loading on the groundwater.

The ideas and recommendations contained in this manual are based on experience and engineering judgment for the "average situation", but each site is different and some modifications may be necessary. However, any modifications require that adequate consideration be given to all the ramifications inherent to such changes. Split-flow systems are still in the early stage of development: most are owner designed, homemade systems, and have not been subjected to rigorous engineering studies; and as a result, reliable information on performance is limited.

In all cases, split-flows require more attention from the users than do traditional plumbing systems, and the homeowner must be willing to accept this responsibility.

TYPES OF SYSTEMS

In deciding to use a split-flow system one must choose the type of greywater system to use and also determine how to handle the black wastes. There are many possibilities available, but two examples will illustrate the most common choices. One example is a greywater recycling system; the other is a system involving composting toilets.

Figure 1 shows a typical greywater recycling system. Wastewater from the laundry, utility sink, and bathtub/shower is recycled (stored and treated) and then used for toilet flushing. Wastewater from the toilet, bathroom sink and kitchen sink is discharged to a septic tank, along with any of the recycled water which is not needed for flushing. One common variation on Figure 1 is to use the greywater to water a garden, rather than for toilet flushing.

As a second example, Figures 2 and 3 illustrate typical composting toilets which can be installed in all the bathrooms of a dwelling. The toilets